Printed Page	e 1 of 2					\$	Sub	Cod	e:K	CS1	01
Paper Id:	110111	Roll No:									

### B. TECH. (SEM-I) THEORY EXAMINATION 2019-20 PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

#### **SECTION A**

### 1. Attempt all questions in brief.

 $2 \times 10 = 20$ 

Qno.	Question	Marks	CO
a.	Name different storage class with one example of each.	2	CO1
b.	Describe the functionalities of operating system.	2	CO1
c.	Differentiate between implicit & Explicit type conversion.	2	CO2
d.	What do you understand by mixed operands? Explain with example.	2	CO2
e.	What is the meaning of prototype of a function?	2	CO3
f.	Differentiate between while and do-while loop.	2	CO3
g.	Write an algorithm to find second largest element in an array.	2	CO4
h.	Differentiate structure with union.	2	CO4
i.	Explain the role of C preprocessor.	2	CO5
j.	What do you mean by pointer arithmetic?	2	CO5

#### SECTION B

# 2. Attempt any *three* of the following:

 $3 \times 10 = 30$ 

An. Discuss the major components of a digital computer with suitable block diagram. Also discuss the function of each component.  b. What are operators? Mention different types of operators in C. Explain the difference between operator precedence and associativity with suitable example.  c. Take the three digit number from the user then write a program to check entered number is palindrome or not.  d. Write a program that prints the real roots of a quadratic equation. Also draw flowchart for the same.  e. Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use the macro definitions for calculating simple interest and amount.				
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c. Take the three digit number from the user then write a program to check entered number is palindrome or not.  d. Write a program that prints the real roots of a quadratic equation. Also draw flowchart for the same.  e. Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use the macro definitions for		the difference between operator precedence and associativity with		
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<ul> <li>d. Write a program that prints the real roots of a quadratic equation. Also draw flowchart for the same.</li> <li>e. Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use the macro definitions for</li> </ul>	c.		10	CO3
draw flowchart for the same.  e. Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'.  Include this file in your program and use the macro definitions for				
e. Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use the macro definitions for	d.	Write a program that prints the real roots of a quadratic equation. Also	10	CO4
and amount. Store these macro definitions in a file called 'interest.h'.  Include this file in your program and use the macro definitions for		draw flowchart for the same.		
Include this file in your program and use the macro definitions for	e.	Write macro definition with arguments for calculation of simple interest	10	CO5
		and amount. Store these macro definitions in a file called 'interest.h'.		
calculating simple interest and amount.				
		calculating simple interest and amount.		

#### SECTION C

## 3. Attempt any *one* part of the following:

 $1 \times 10 = 10$ 

Qno.	Question	Marks	CO
a.	Differentiate between:	10	CO1
	(i) Compiler and Interpreter		
	(ii) Linker and Loader		
	(iii) break and continue		
b.	(i) Define data types in C. Discuss primitive data types in terms of	10	CO1
	memory size, format specifier and range.		
	(ii) Explain structure of a C program.		

Printed Page	e 2 of 2					S	Sub	Cod	e:K	CS1	01
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### 4. Attempt any *one* part of the following:

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Qno.	Question	Marks	CO
a.	What are different conditional statements in C programming? Explain	10	CO2
	with proper example of each.		
b.	if three sides of triangle are input through keyboard, draw a flowchart to	10	CO2
	check whether a triangle is isosceles, equilateral, scalene or right-angled		
	triangle. Also write a program in C for the same.		

## 5. Attempt any *one* part of the following:

## $1 \times 10 = 10$

Qno.	Question	Marks	CO
a.	(i) Write a program in C to generate the Fibonacci series up to the last Fibonacci number less than 100. Also finds the sum of all	6	CO3
	Fibonacci numbers and total count of all Fibonacci numbers.		
	(ii) Write a program in C to print the following pattern:		
	2 3 4 5 6 7		
	3 4 5 6 7	4	
	4 5 6 7		
	5 6 7		
	7		
b.	Differentiate between call by value and call by reference. Write a	10	CO3
	program in C that computes the area and circumference of a circle with		VD.
	radius taken as input using call by reference in functions.		VX

# 6. Attempt any *one* part of the following:

#### $1 \times 10 = 10$

Qno.	Question	Marks	CO
a.	What do you mean by sorting? Write a program in C to sort 'n' positive	10	CO4
	integers using bubble sort. Also draw the flow chart for the same.		
b.	Create a suitable structure in C language for keeping the records of the	10	CO4
	employees of an organization about their code, Name, Designation,		
	Salary, Department, City of posting. Also write a program in C to enter		
	the records of 100 employees and displays the name of those who earn		
	more than 20,000.		

# 7. Attempt any *one* part of the following:

### $1 \times 10 = 10$

Qno.	Question	Marks	CO
a.	What are different file opening modes? Write a program in C that reads a	10	CO5
	series of integer numbers from a file named INPUT and write all odd		
	numbers to a file to be called ODD and all even numbers to a file to be		
	called EVEN.		
b.	State the features of a pointer. Explain dynamic memory allocation with	10	CO5
	the help of an example.		